COOLEX
COMFORT BEYOND EXPECTATIONS

Concealed Ducted Split Series R407C

24-60 MBH

R407C

Ducted Split with Hermetic Compressor Tropical

50 Hz

TABLE OF CONTENT

ABOUT THE COMPANY

Refrigeration Industries & Storage and Oil Services Company, occupies a leading position as one of the largest industrial companies in Kuwait which established in 1973, it plays a proactive role in providing various services and diverse activities such as manufacturing, storage, and oil services to meet the needs of customers both inside and outside Kuwait.

Since its inception, RIC has been committed to excellence and advancing its progress, leading to the establishment of the brand (Coolex) in 1986, a true milestone in the Kuwaiti market as the first in the region in the sector of manufacturing air conditioning systems and cooling solutions.

Furthermore, the company has consistently empowered its workforce, enhanced safety and competitiveness, and utilized innovative technologies to launch new products that meet the needs of various sectors, contributing to expansion and supporting growth and prosperity.

To ensure the highest performance in the future, RIC harnesses its continuous research to enhance efficiency and quality, while continuing its efforts to manufacture products capable of adapting to climate, environmental, and energy challenges.

Facts throughout the years

1973 Warehouses were established by Amiri Decree.

1979 RIC Constructed the Medical Cold Stores Complex, the world's largest at that time.

1980 RIC Air Conditioning manufacturing plant set up in Sulaibya.

1981 Production of Package & Mini-Split A/Cs started under York-Gulf.

1984 RIC was listed in Kuwait Stock Exchange.

1986 COOLEX brand Production Launched.

1991 RIC rebuilt the manufacturing plant destroyed during the war.

1997 Achieved ISO Certification ISO 9001:1994.

2002 ETL Designed testing lab became fully operational.

2004 Privatization of RIC.

2010 COOLEX becomes the first A/C Unit to Pass MEW's new regulations.

2010 RIC Factory Renovation and Expansion into neighboring countries.

2012 Achieved UL & AHRI Certification for Coolex Units.

2014 Achieved SASO Certification for Concealed Ducted Split Series.

2014 Achieved EUROVENT Certification for Air Handling Units AHU.

2014 Achieved UL Certification for Air Cooled Chillers.

2015 Achieved ISO 17025 Certification for Psychrometric Laboratory.

2016 Achieved Energy Efficiency Certification for Concealed Ducted Split Series & Rooftop Package units (Kingdom of Bahrain).

2016 Acquisition of Gulf Paramount for Electrical Services Company.

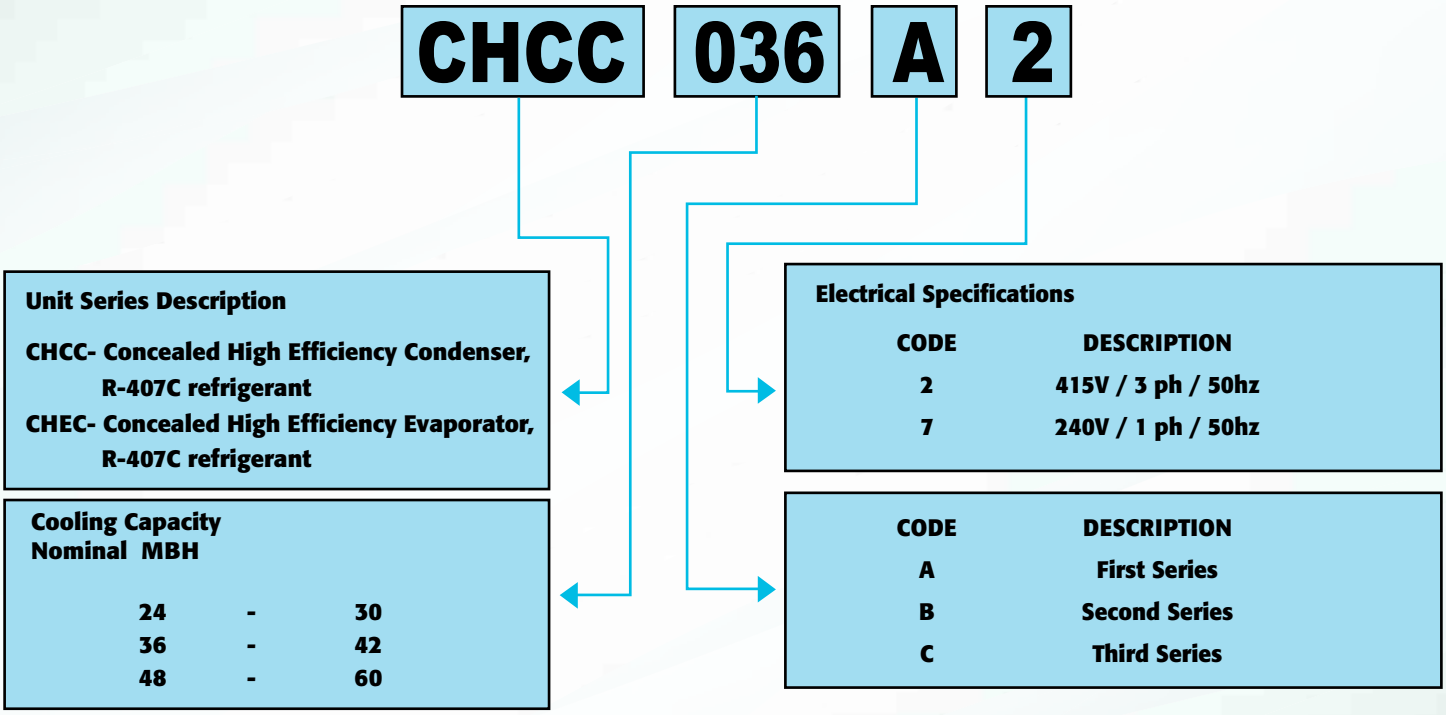
2021 Acquisition of Kuwait Pipes Industries & Oil Services factory, resulting in a change of the company's name from Refrigeration Industries & Storage Co. to Refrigeration Industries & Storage and Oil Services Co.

INTRODUCTION

COOLEX High Efficiency Concealed Ducted Split Units are designed specifically for tropical operation with high performance, low power consumption, easy installation and low noise operations.

COOLEX Concealed Ducted Split Units can be used for cooling or heating with optional duct electric heater.

NOMENCLATURE



UNIT RATING SUMMARY

Unit Model	Air Flow	Ambient temp 95°F				Ambient temp 115°F				Ambient temp 118.4°F			
		Cooling Capacity	Total Power (kW)	kW/Ton	EER	Cooling Capacity	Total Power (kW)	kW/Ton	EER	Cooling Capacity	Total Power (kW)	kW/Ton	EER
	(CFM)	(Btu/h)				(Btu/h)				(Btu/h)			
CHCC-024A7/ CHEC-024A7	814	27,263	1.92	0.84	14,2	23,906	2.48	1.24	9.64	23,098	2.58	1.34	8.93
CHCC-030A7/ CHEC-030A7	1214	36,039	3.02	1.00	11.9	32,734	3.64	1.34	9.0	32,160	3.75	1.40	8.6
CHCC-036A2/ CHEC-036A7	1117	36,686	2.78	0.91	13.18	33,931	3.53	1.25	9.6	33,430	3.67	1.32	9.1
CHCC-042A2/ CHEC-042A7	1572	48,760	4.25	1.05	11.5	45,611	5.05	1.33	9.0	45,840	5.31	1.39	8.6
CHCC-048A2/ CHEC-048A7	1766	58,321	5.04	1.04	11.6	54,996	5.89	1.29	9.3	53,520	6.15	1.38	8.7
CHCC-060A2/ CHEC-060A7	2020	65,880	5.57	1.01	11.8	59,602	6.67	1.34	8.9	59,760	6.99	1.40	8.5

Rating Conditions: Indoor Temperature DB = 80° F (26.7° C).
WB 67° F (19.4° C).

OUT STANDING FEATURES

Indoor Unit

- Compact design
- Low profile
- Low sound power level
- For ducted application
- Easy maintenance
- Easy installation
- External terminal box

Outdoor Unit:

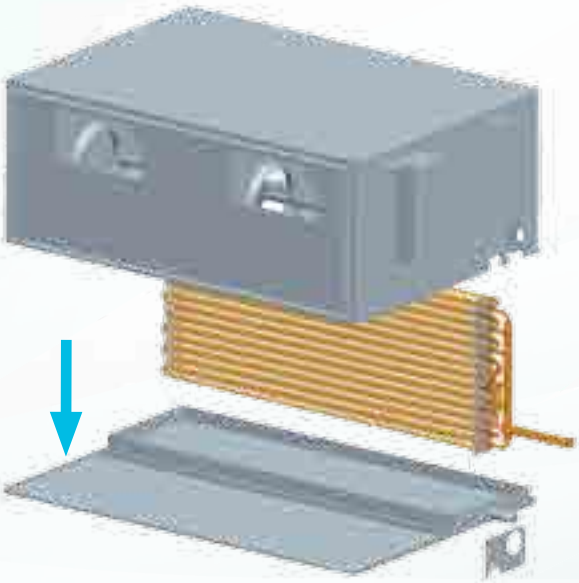
- High efficiency tropical design
- Galvanized heavy gauge panels, oven baked powder coated
- Designed to operate at severe ambient temperature up to 52°C without tripping
- 24v control
- Coil guard protection
- External service valve with gauge ports

OUT STANDING FEATURES

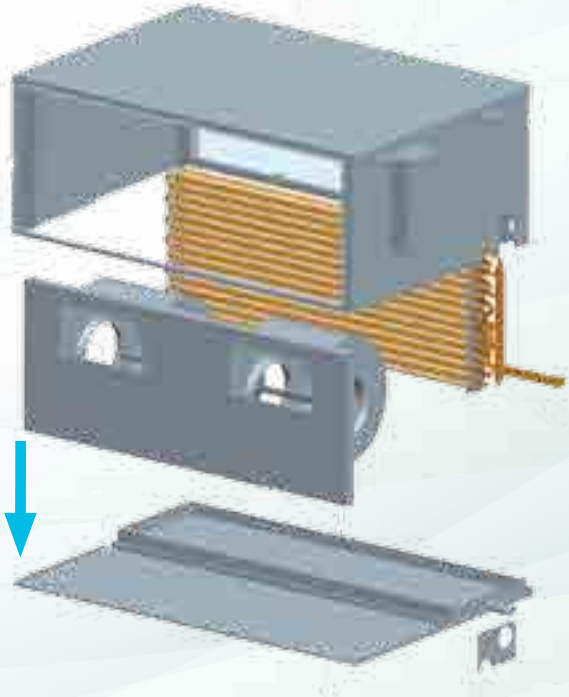
Bottom access panel

Options & Accessories

- Microprocessor controller
- Digital thermostat
- Cleanable air filter



Bottom sliding coil and drain pan



Bottom sliding fan deck

STANDARD SPECIFICATIONS

(OUTDOOR UNIT) & (INDOOR UNIT)

General

The side discharge condensing units are provided with the latest advanced technology to provide quiet, reliable performance. The wrap around coil adds aesthetical appeal and gives optimum heat transfer efficiency. The access panels provide access to the compressor and to the control box. Removal of top panel gives access to fan motor and coil.

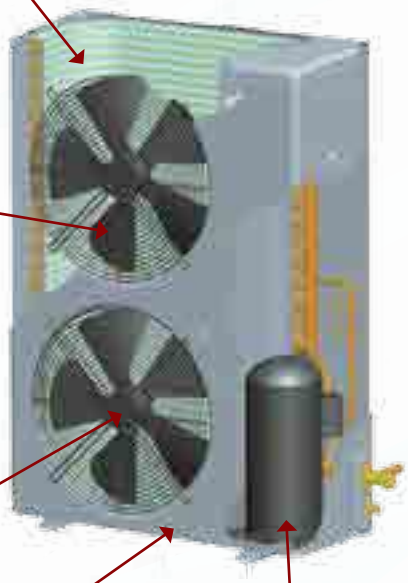
Unit Construction

The indoor unit consists of a coil, motor/blower assembly and a drain pan securely mounted on heavy gauge galvanized steel housing.

Condenser Coils
The coils are built up of ripple finned seamless copper tubes and mechanically bonded to scientifically designed louvered fins.

Condenser Fans
Axial type condenser fan are used which precisely match with extra strong fan motor to ensure efficient hot air dissipation.

Condenser Fan Motor
The condenser fan motors are a 4/6 poles electric motor which directly drive the condenser fans confirming to BS/IES standards. They are totally enclosed air over type electric motors with built-in thermal protector class F insulation.

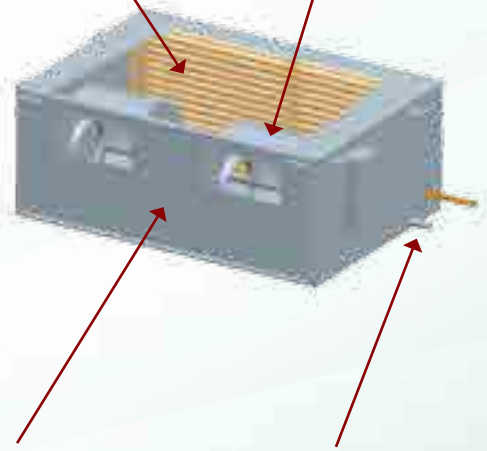


Unit Casing
The casing sheet metal is fabricated from hot dipped G90, Zinc coating and zero spangle galvanized steel, oven-baked powder coated.

Compressor
The compressors are hermetically sealed type. The compressors are equipped with internal motor protector and necessary accessories for safe operation.

Evaporator Coils
The coils are built up of ripple finned seamless copper tubes and mechanically bonded to scientifically designed louvered fins.

Blower Assembly
The units are provided with centrifugal fans which are statically and dynamically balanced, designed for low sound level operation



Evaporator Blower Motor
The evaporator blower motor is directly drives the evaporator blower conforming to BS/IES standards it is open drip proof type electric motors with built-in thermal protector and permanently lubricated ball bearings class B insulation.

Drain Pan
The drain pan is fabricated from galvanized steel. The drain pan is powder coat painted and the outer surface is thermally insulated.

OPTIONAL SPECIFICATIONS

Duct Electric Heater

A protection box with duct electric heater and safety control can also be provided. Maximum kW Ratings is as shown

Model	kW	Model	kW
CHEC-024 A7	2.0	CHEC-042 A7	4.0
CHEC-030 A7	3.0	CHEC-048 A7	4.0
CHEC-036 A7	3.0	CHEC-060 A7	5.0

MICROPROCESSOR BASED CONTROLLER

The concealed ducted split units are provided with Microprocessor based controller, incorporating the following benefits and features:

- Compressor anti short cycle timer.
- Compressor lock out function.
- Compressor trip/lock out error indication through LED.

Home Automation System

Coolex App

Wi Fi Module

Typical Thermostat

Thermostat features:

1. Voltage rating: 24VAC
2. Room temperature/Set temperature display in °C or °F
3. Mode of operation: Cool/Heat/Auto
4. Fan mode: Auto/ON
5. Key lock function
6. Preset temperature setting: Comfort/Economy/Away
7. Duct/Remote sensor option
8. Temperature offset calibration
9. BMS Modbus option

SELECTION PROCEDURE

The below example illustrates the selection procedure to assist using this catalog to select the appropriate CHEC/CHCC unit that meets the design requirements.

Altitude [ft]	Correction factor
Sea level	1
1000	0.996
2000	0.990
3000	0.984
4000	0.980
5000	0.974
6000	0.965
7000	0.960

Example :

Design requirements

- Total cooling capacity 32,000 [Btu/hr]
- Sensible cooling capacity 24,000 [Btu/hr]
- Design ambient temperature 118.4 [°F]
- Evaporator air flow 1100 [CFM]
- Evaporator entering temperature DB/WB 80/67 [°F/°F]
- Altitude 2000 [ft]
- Power supply 415V / 3Ph / 50Hz

*Using the correction factor table at the specified altitude, thereby the required capacity will be:

Corrected capacity = Required capacity /corr. factor

Corrected total capacity = 32,000 [Btu/hr]/0.99
= 32,323 [Btu/hr]

Corrected sensible capacity = 24,000 [Btu/hr]/0.99
= 24,242[Btu/hr]

From the cooling capacity at performance data tables (page 9), the closest selection model to the required
Capacity is CHEC/CHCC 036:

Total capacity = 33,430 [Btu/hr]

Sensible capacity = 25,077 [Btu/hr]

GENERAL DATA

Outdoor Units		CHCC 24	CHCC 30	CHCC 36	CHCC 42	CHCC 48	CHCC 60
Compressor	Type	Hermetically Sealed					
	Quantity	1	1	1	1	1	1
	Refrigerant	R 407C					
Condenser Fan	Type	SPCC Axial Fan					
	Quantity	1	1	2	2	2	2
	Airflow, m^3/h	4500	4500	9000	9000	9000	9000
	(CFM)	2650	2650	5300	5300	5300	5300
	Drive	Direct					
Condenser Coil	Type	Coated Louvered Aluminum Fin & Inner Grooved Tube					
	Row Deep	2	2	2	2	3	3
	Total Area, Sq.m	0.73	0.82	1.25	1.25	1.24	1.24
	(Sq.Ft)	7.85	8.82	13.45	13.45	13.34	13.34
Weight	kg	74	78	108	109	128	131

Indoor Units		CHEC 024	CHEC 030	CHEC 036	CHEC 042	CHEC 048	CHEC 060
Evaporator Blower	Type	Centrifugal Forward Curve DWDI					
	Drive	Direct					
Evaporator Coil	Type	Hydrophilic Aluminum Fins and Inner Grooved Copper Tubes					
	Row Deep	3	3	3	3	3	3
	Total Area, Sq.m	0.23	0.23	0.32	0.32	0.35	0.42
	(Sq.Ft)	2.5	2.5	3.4	3.4	3.8	4.5
Expansion Devices		Capillary					
Weight	kg	38	39	54	54	58	61

PERFORMANCE DATA TABLES

Model	Evaporator			Condenser Ambient Temperature								
	Air Flow	Temp ° F		95 °F			115 °F			118.4 °F		
	CFM	DB	WB	Capacity Btu/Hr		kw Input	Capacity Btu/Hr		kw Input	Capacity Btu/Hr		kw Input
				Total	Sen.		Total	Sen.		Total	Sen.	
CHCC-024A7 CHEC-024A7	726	86	72	27,087	19,936	2.02	23,220	17,647	2.58	22,876	17,234	2.68
		80	67	25,577	18,825	1.90	21,926	16,664	2.46	21,602	16,274	2.56
		74	62	23,071	16,980	1.78	19,778	15,031	2.34	19,485	15,068	2.44
		68	57	21,229	15,625	1.66	18,199	13,831	2.22	17,930	13,507	2.32
	770	86	72	27,668	20,363	2.03	23,718	18,026	2.59	23,367	17,730	2.69
		80	67	26,126	19,229	1.91	22,397	17,022	2.47	22,065	16,743	2.57
		74	62	23,566	17,344	1.79	20,202	15,353	2.35	19,903	15,502	2.45
		68	57	21,685	15,960	1.67	18,589	14,128	2.23	18,314	13,896	2.33
	814	86	72	28,872	21,249	2.04	25,316	19,765	2.60	24,461	19,240	2.70
		80	67	27,263	20,072	1.92	23,906	18,674	2.48	23,098	18,169	2.58
		74	62	24,591	18,099	1.80	21,563	16,834	2.36	20,834	16,388	2.46
		68	57	22,629	16,655	1.68	19,842	15,491	2.24	19,172	15,080	2.34
CHCC-030A7 CHEC-030A7	1028	86	72	35,867	22,040	2.95	32,598	21,122	3.57	32,038	20,989	3.66
		80	67	33,083	21,436	2.92	30,051	20,512	3.53	29,377	20,317	3.62
		74	62	30,289	20,507	2.89	27,490	19,554	3.48	26,998	19,375	3.58
		68	57	27,702	19,675	2.86	25,119	18,616	3.46	24,722	18,602	3.55
	1064	86	72	37,665	23,468	3.01	34,231	22,490	3.63	33,644	22,348	3.73
		80	67	34,741	22,825	2.97	31,557	21,841	3.59	30,849	21,633	3.69
		74	62	31,808	21,835	2.94	28,867	20,821	3.56	28,351	20,631	3.65
		68	57	29,090	20,951	2.91	26,378	19,823	3.53	25,961	19,808	3.61
	1214	86	72	39,071	25,046	3.05	35,510	24,002	3.69	34,900	23,851	3.78
		80	67	36,039	24,360	3.02	32,734	23,309	3.64	32,160	23,246	3.75
		74	62	32,995	23,304	2.98	29,945	22,221	3.60	29,409	22,018	3.71
		68	57	30,176	22,359	2.95	27,363	21,155	3.58	26,931	21,139	3.66
CHCC-036A2 CHEC-036A7	1028	86	72	36,363	26,763	2.87	33,585	25,525	3.62	33,089	24,615	3.76
		80	67	34,337	25,272	2.72	31,714	24,103	3.47	31,245	22,461	3.61
		74	62	30,972	22,795	2.57	28,606	21,741	3.32	28,183	20,833	3.46
		68	57	28,500	20,976	2.42	26,323	20,005	3.17	25,934	18,733	3.31
	1064	86	72	37,143	27,337	2.90	34,306	26,072	3.65	33,799	25,324	3.79
		80	67	35,074	25,814	2.75	32,394	24,620	3.50	31,916	23,108	3.64
		74	62	31,636	23,284	2.60	29,220	22,207	3.35	28,788	21,433	3.49
		68	57	29,111	21,426	2.45	26,887	20,434	3.20	26,490	19,273	3.34
	1117	86	72	38,850	28,594	2.93	35,932	28,606	3.68	35,402	27,309	3.82
		80	67	36,686	26,214	2.78	33,931	25,787	3.53	33,430	25,077	3.67
		74	62	33,091	24,354	2.63	30,606	24,364	3.38	30,154	23,259	3.52
		68	57	30,450	22,411	2.48	28,163	22,420	3.23	27,747	21,403	3.37

PERFORMANCE DATA TABLES

Model	Evaporator			Condenser Ambient Temperature								
	Air Flow	Temp ° F		95 °F			115 °F			118.4 °F		
	CFM	DB	WB	Capacity Btu/Hr		kw Input	Capacity Btu/Hr		kw Input	Capacity Btu/Hr		kw Input
				Total	Sen.		Total	Sen.		Total	Sen.	
CHCC-042A2 CHEC-042A7	1311	86	72	48,878	27,569	4.16	47,886	27,095	4.92	45,106	26,890	5.06
		80	67	45,152	27,387	4.11	42,237	27,018	4.89	41,671	26,838	5.02
		74	62	41,399	25,654	4.05	38,665	25,293	4.80	38,153	25,105	4.93
		68	57	37,892	24,614	4.01	35,421	24,311	4.74	34,935	24,121	4.87
	1359	86	72	50,883	29,352	4.24	49,851	28,399	5.02	46,957	28,183	5.16
		80	67	47,005	29,042	4.19	43,971	28,317	4.97	43,380	28,129	5.11
		74	62	43,098	26,888	4.14	40,251	26,510	4.90	39,719	26,312	5.03
		68	57	39,447	25,798	4.08	36,875	25,480	4.83	36,369	25,281	4.96
	1572	86	72	52,784	31,084	4.31	51,712	30,309	5.09	48,710	30,079	5.23
		80	67	48,760	30,995	4.25	46,450	30,221	5.05	45,840	31,018	5.31
		74	62	44,708	28,696	4.19	41,755	28,293	4.96	41,203	28,082	5.10
		68	57	40,921	27,532	4.14	38,252	27,193	4.90	37,726	26,981	5.04
CHCC-048A2 CHEC-048A7	1450	86	72	57,953	34,268	4.90	53,026	31,126	5.75	52,323	30,986	5.90
		80	67	54,005	33,136	4.88	50,927	32,277	5.71	48,985	31,581	5.86
		74	62	50,811	32,511	4.84	46,051	31,615	5.66	45,231	31,234	5.79
		68	57	46,078	32,145	4.69	41,790	30,939	5.58	41,421	30,268	5.69
	1526	86	72	60,581	36,184	5.00	55,431	32,867	5.85	54,696	32,821	6.02
		80	67	56,455	34,989	4.98	53,236	34,081	5.82	51,207	33,347	5.98
		74	62	53,116	34,329	4.93	48,140	33,383	5.77	47,282	32,982	5.90
		68	57	48,168	33,943	4.79	43,686	32,668	5.68	43,300	31,961	5.81
	1766	86	72	62,584	38,331	5.06	57,263	34,816	5.92	56,504	34,699	6.09
		80	67	58,321	37,065	5.04	54,996	36,104	5.89	53,520	36,425	6.15
		74	62	54,871	36,366	4.99	49,731	35,364	5.84	48,845	34,938	5.98
		68	57	49,762	35,956	4.84	45,130	34,606	5.76	44,731	33,857	5.88
CHCC-060A2 CHEC-060A7	1548	86	72	66,817	40,527	5.56	61,022	38,899	6.50	59,791	38,692	6.68
		80	67	60,477	39,566	5.39	54,715	37,855	6.45	54,528	37,616	6.55
		74	62	52,786	37,694	5.33	47,928	34,842	6.23	47,228	34,025	6.27
		68	57	49,723	35,527	5.13	44,011	34,624	6.13	43,708	33,951	6.23
	1674	86	72	70,166	43,151	5.67	64,079	41,419	6.64	62,788	41,198	6.81
		80	67	63,508	42,129	5.49	57,911	40,306	6.57	57,261	40,052	6.69
		74	62	55,431	40,136	5.44	50,330	37,098	6.35	49,594	36,228	6.39
		68	57	52,215	37,723	5.23	46,217	36,867	6.26	45,992	36,150	6.32
	2020	86	72	72,785	46,053	5.75	66,472	44,203	6.73	65,133	43,968	6.90
		80	67	65,880	44,961	5.57	60,410	43,017	6.67	59,760	40,408	6.99
		74	62	57,501	42,835	5.51	52,210	39,592	6.58	51,446	38,664	6.61
		68	57	54,165	40,925	5.30	47,942	39,346	6.41	47,797	38,581	6.46

*Note: Capacity in KW= (Btu/hr)*0.0003. Cooling capacities are gross ratings*
Total power Input Includes (Indoor Unit kW, Outdoor Unit kW)

UNIT ELECTRICAL DATA

Outdoor Units		CHCC 024	CHCC 030	CHCC 036	CHCC 042	CHCC 048	CHCC 060
Unit Power Supply	Volt	240	240	415	415	415	415
	Phase	1	1	3	3	3	3
	Hz	50					
Compressor	V - Ph - Hz	220/240 - 1 - 50		380/420 - 3 - 50			
	RLA	11.4	13.6	6.4	7.9	8.3	10
	LRA	60	76	46	50	61.8	65.5
Condenser Fan Motor	V - Ph - Hz	240 - 1 -50			415 - 3 - 50		
	Output kW	0.40	0.40	0.4x2	0.37x2	0.37x2	0.37x2
	FLA	1.70	1.70	1.7x2	0.70x2	0.70x2	0.70x2
Unit Ampacity, Ampere		16.0	18.7	11.4	11.3	11.8	13.9
Max. Fuse Size, Ampere		25	30	15	20	20	20
Minimum Wire Size, mm²		4	4	2.5	2.5	2.5	2.5

Indoor Units		CHEC 024	CHEC 030	CHEC 036	CHEC 042	CHEC 048	CHEC 060
Unit Power Supply	Volt	240					
	Phase	1					
	Hz	50					
Blower Motor	V - Ph - Hz	240 - 1 - 50					
	Output Motor Hp	1/3	1/3	1/3	1/2	3/4	3/4
	FLA	2.5	2.5	2.5	3.1	4.5	4.5
Unit Ampacity, Ampere		3.1	3.1	3.1	3.9	5.6	5.6
Max. Fuse Size, Ampere		5	5	5	5	10	10
Minimum Wire Size, mm²		1.5	1.5	1.5	1.5	1.5	1.5

LEGEND:

FLA : Full Load Amps
RLA : Rated Load Amps
LRA : Locked Rotor Amps

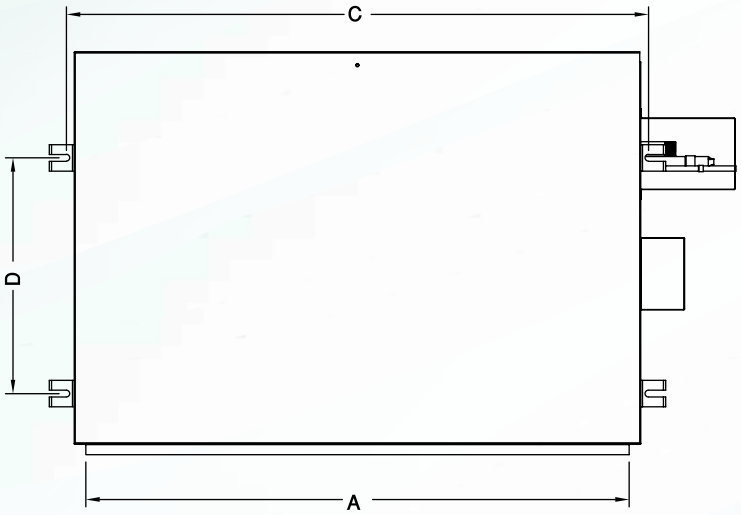
SUPPLY AIR PERFORMANCE

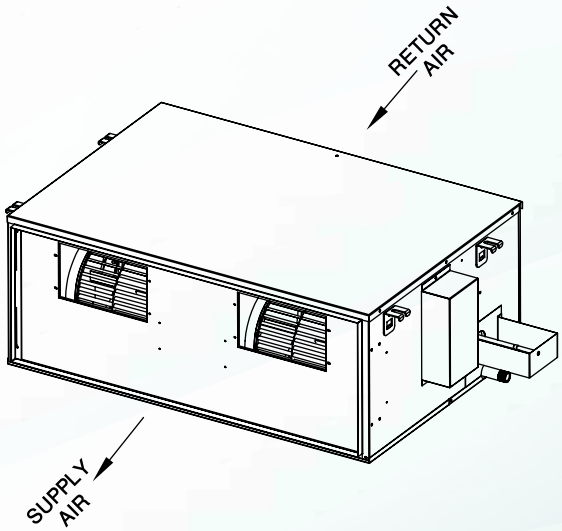
Model	SPEED	External Static Pressure [in.wg]				
		0.0	0.1	0.2	0.3	0.4
		Air Flow Rate [CFM]				
CHEC-024	HIGH	814	773	673	622	519
	MED	770	714	619	571	-
	LOW	726	655	565	-	-
CHEC-030	HIGH	1214	1008	919	825	752
	MED	974	843	743	606	-
	LOW	923	817	721	-	-
CHEC-036	HIGH	1117	1050	961	867	794
	MED	1064	1001	911	790	-
	LOW	1028	952	861	-	-
CHEC-042	HIGH	1572	1338	1269	1210	1207
	MED	1441	1294	1220	1173	-
	LOW	1311	1251	1172	1137	-
CHEC-048	HIGH	1766	1466	1426	1338	1224
	MED	1608	1416	1358	1285	1060
	LOW	1450	1367	1291	1232	-
CHEC-060	HIGH	2020	1644	1583	1466	1241
	MED	1784	1561	1497	1396	1187
	LOW	1548	1477	1410	1327	1134

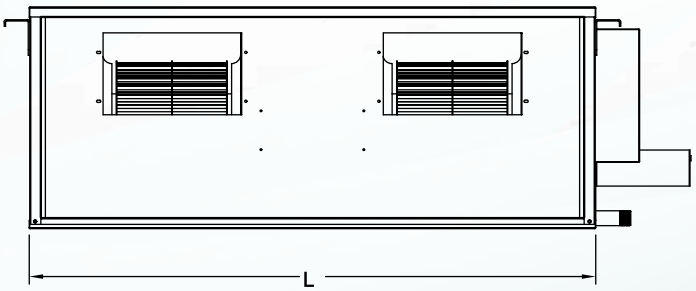
UNIT DIMENSIONS

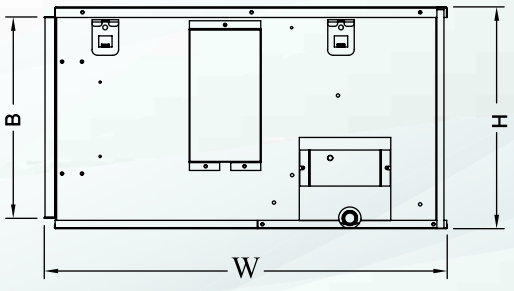
Indoor Unit

MODEL	DIMENSIONS					
	L	W	H	DUCT CINNECTION AXB	C	D
CHEC-024	952	636	325	912X288	980	380
CHEC-030	952	636	325	912X288	980	380
CHEC-036	952	707	370	912X333	980	425
CHEC-042	952	707	370	912X333	980	425
CHEC-048	1022	727	400	980X363	1050	425
CHEC-060	1022	877	400	980X363	1050	600
ALL DIMENSIONS ARE IN MM						





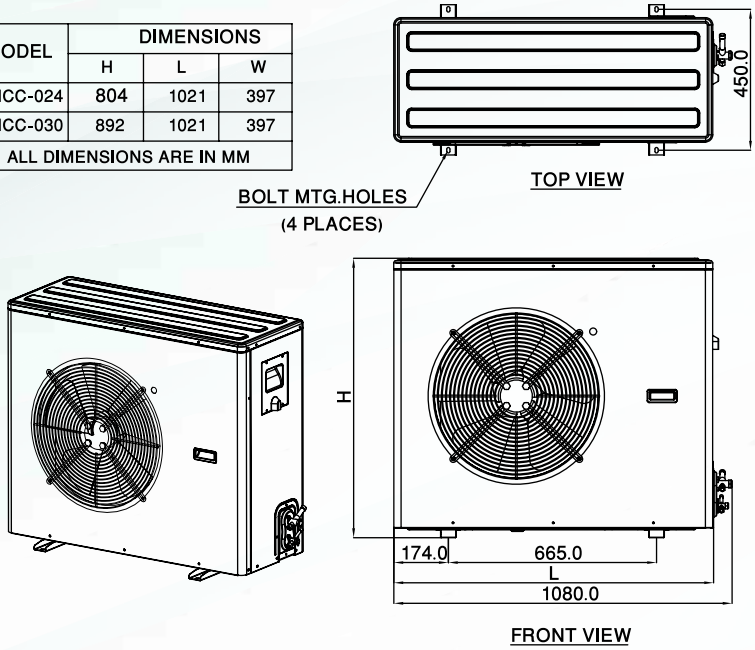




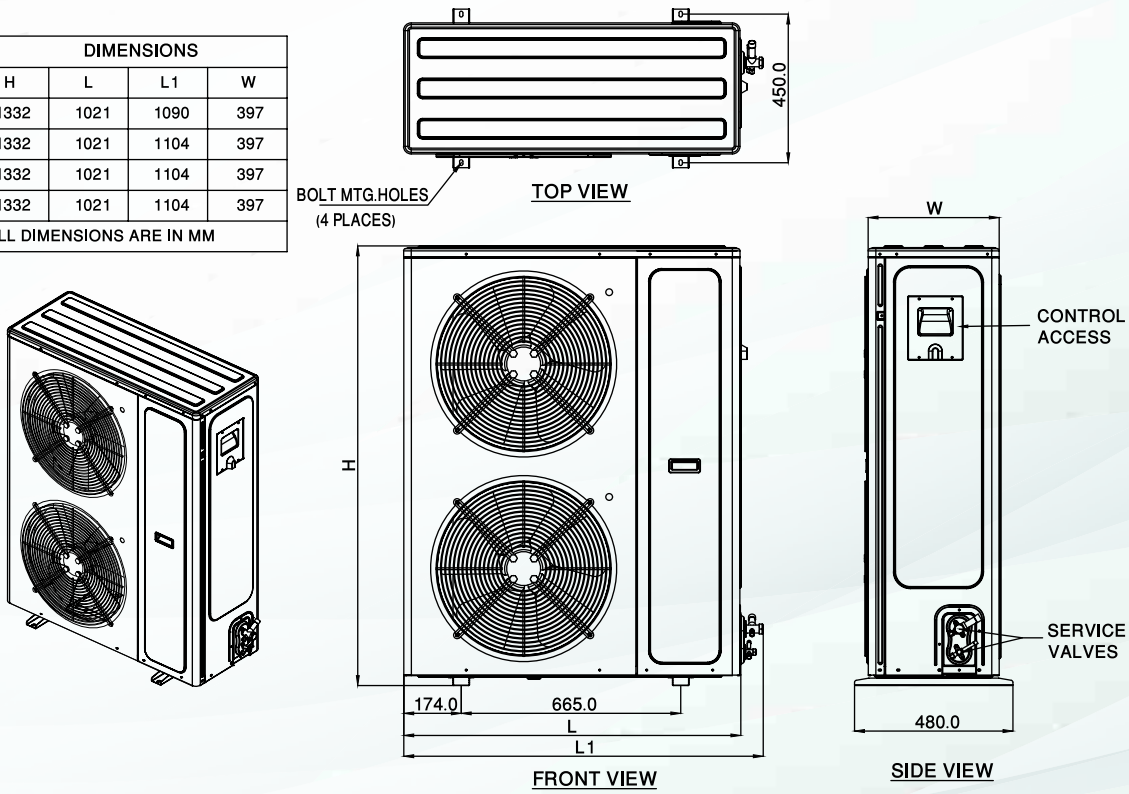
UNIT DIMENSIONS

Outdoor Units

MODEL	DIMENSIONS		
	H	L	W
CHCC-024	804	1021	397
CHCC-030	892	1021	397
ALL DIMENSIONS ARE IN MM			

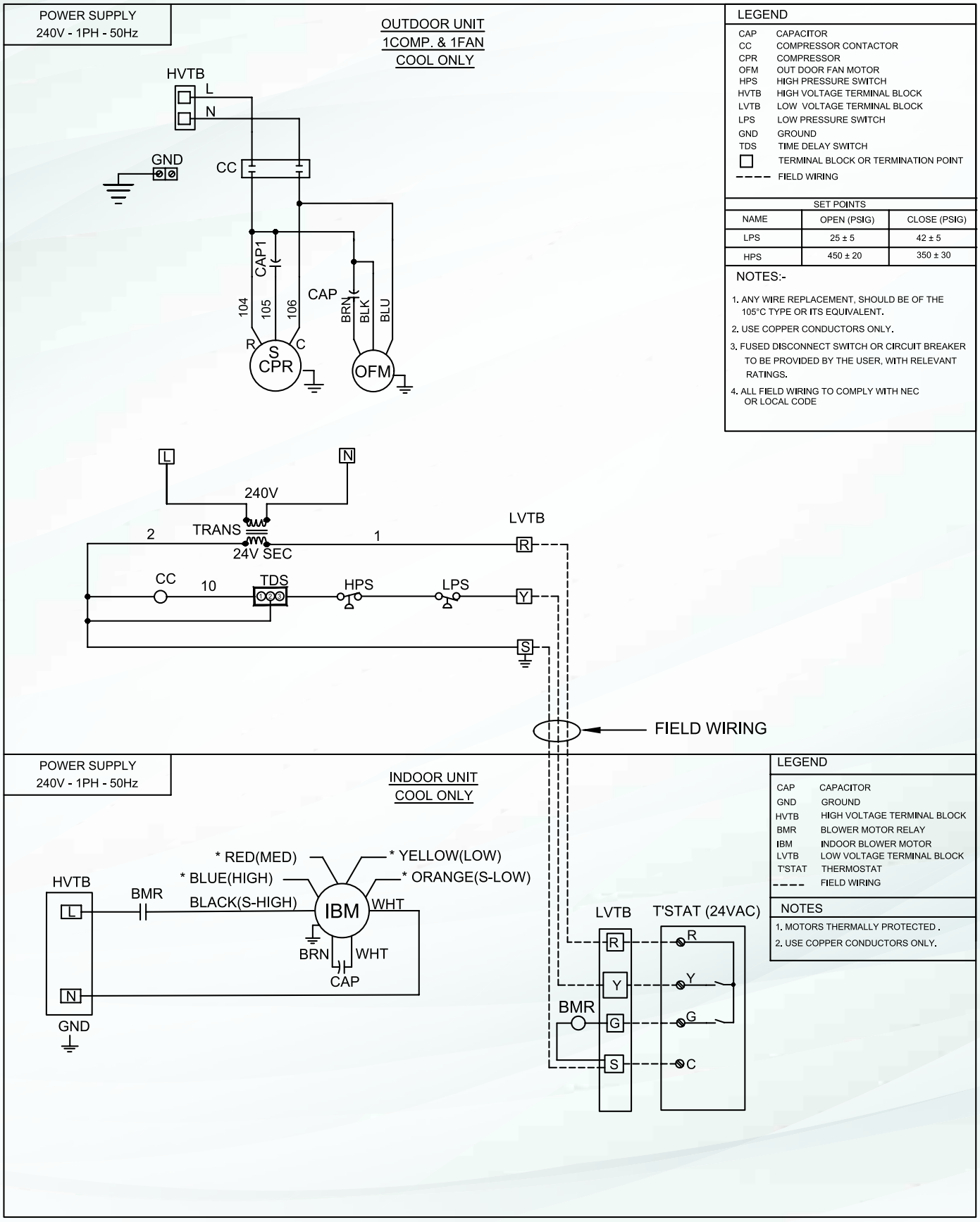


MODEL	DIMENSIONS			
	H	L	L1	W
CHCC-036	1332	1021	1090	397
CHCC-042	1332	1021	1104	397
CHCC-048	1332	1021	1104	397
CHCC-060	1332	1021	1104	397
ALL DIMENSIONS ARE IN MM				



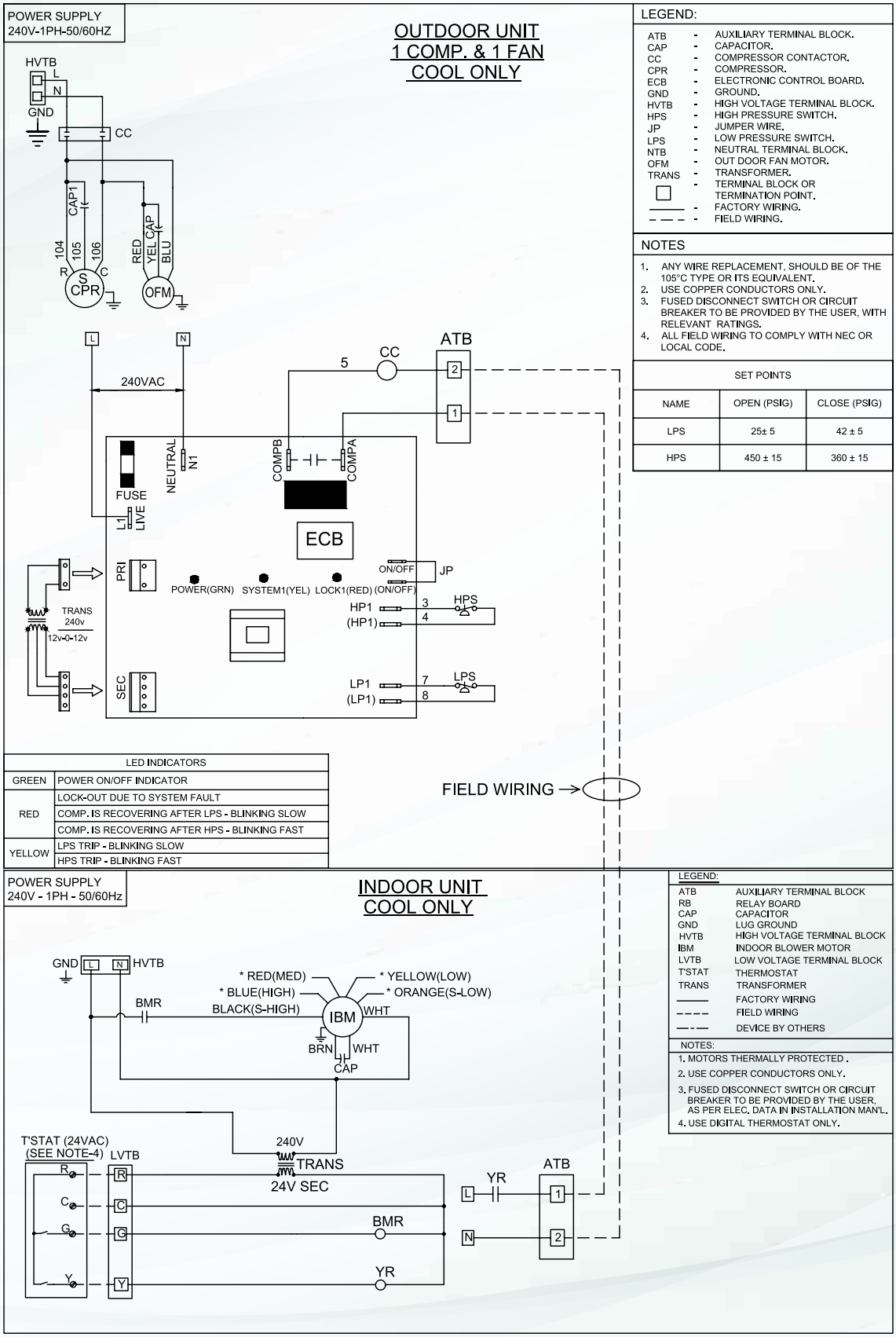
TYPICAL WIRING DIAGRAMS

Electro-Mechanical Controls(24Vac)



TYPICAL WIRING DIAGRAMS

Microprocessor Based Controller (Optional)



شركة صناعات التبريد والتخزين والخدمات النفطية

Refrigeration Industries & Storage and Oil Services Co. KSC

Ref no.: CSCC25-5-001

CONTACT US

T : +965 183 33 80

w : www.coolex.com.kw

Sulaibiya Industrial, Block 1,
Road 4, Plot No. 105.